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[54] **REINFORCED CALCIUM ALUMINOSILICATE GLASS-CERAMICS**

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[*] Notice: The portion of the term of this patent subsequent to Oct. 7, 2003 has been disclaimed.

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[51] **Int. Cl.**[4] **C03C 10/06;** C03C 14/00; C04B 35/56

[52] **U.S. Cl.** **501/8;** 501/32; 501/89; 501/95

[58] **Field of Search** 501/32, 8, 89, 95

[56] **References Cited**

U.S. PATENT DOCUMENTS

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[57] **ABSTRACT**

The present invention is directed to the production of SiC whisker- and/or fiber-reinforced, internally-nucleated glass-ceramic matrix composite articles consisting essentially of 0.5–60% by weight SiC whiskers and/or 15–70% by volume ceramic fibers substantially uniformly distributed in a glass-ceramic matrix consisting essentially, in weight percent on the oxide basis, of 16–20%, CaO, 38.5–46% Al_2O_3, 35–42% SiO_2, and up to 10% total of at least one nucleating agent in the indicated proportion selected from the group consisting of 0.1–3% Cr_2O_3, 0.25–3% HfO_2, 2–5% MoO_3, 0.25–3% Nb_2O_5, 0.25–3% Ta_2O_5, 0.25–3% WO_3, and 1–10% ZrO_2, wherein Al_2O_3 is present in an amount which is at least 5 mole percent and up to 50 mole percent in excess of that present in stoichiometric triclinic anorthite, and wherein the predominant crystal phases in the glass-ceramic are triclinic anorthite and mullite and/or α-Al_2O_3. Up to 1.5% As_2O_3 may advantageously be included in the composition.

6 Claims, No Drawings